HUMAN GENETICS
IN THE COLLEGE CORE CURRICULUM

CORE UA303, Tuesday and Thursday, 11:00 am – 12:15 pm, Silver 207

INSTRUCTOR

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TEXTS

Required:
Human Genetics Laboratory Manual, available for purchase at the NYU bookstore.

Optional:
Links to genetics education resources and readings for each lecture are posted on NYU Classes under Resources. I particularly recommend Online Statistics Education: An Interactive Multimedia Course of Study, by David Lane and colleagues, available at onlinestatbook.com. This is a free book that you can view on the website or download as a PDF, an e-Pub, or an iBook. The iBook version includes useful interactive features. For students wanting a textbook, I recommend Genetics Essentials: Concepts and Connections, by Benjamin A. Pierce. Used copies of this book are available from online bookstores, and any edition will work. Copies are also available on reserve in Bobst Library.

COURSEWORK AND POLICIES

EXAMS
The exams will contain questions covering the lectures and laboratory projects. The problem sets provide practice with some types of questions that will appear on the exams. If you miss one midterm exam because of illness, you must contact me by e-mail before the start of the exam and subsequently provide a doctor’s note explaining your absence. If those conditions are met, your final exam score will replace your missing exam score. If you miss two midterm exams you will be required to withdraw from the course. A make-up will be given for the final exam only under exceptional circumstances that must be discussed with me prior to the exam. In this case a grade of incomplete will be given for the course and a make-up exam will be scheduled for the spring 2018 semester.

PROBLEM SETS
Short problem sets will be assigned most weeks. The problem sets will be posted on NYU Classes under Assignments. These are due at the start of each laboratory session. As answer keys will be posted after the laboratory sessions, late work will not be accepted for credit. Each of the 10 assignments will count as 1/10 of your problem set grade. Problem sets are to be completed independently by each student.

LECTURES
Attendance is recommended, as exams are based largely on the content of the lectures. However, we do not take attendance. Smart-phone use is prohibited in class. Students using laptops must sit in the back row of the classroom. Tablet computers can be used flat, without stands. Because many of the concepts covered in this class are best represented visually, by drawing, students will be best served by taking notes by hand. Lecture slides will be available on NYU Classes under Resources following each lecture.

GROUP PRESENTATIONS
During the laboratory sessions on December 5 and 6, each student will present, as part of a four-person team, a brief oral report on a recent popular media account of a topic in human genetics. Student teams correspond to groups of four people sharing a lab bench during the course of the
semester. The report, which can make use of any appropriate audio/visual aids, will include a summary, analysis, and critique of the popular media account. The student teams will choose topics and identify relevant media accounts by the lab session on October 24/25. Further presentation guidelines are attached.

LABORATORY
The laboratory sessions will be held in Silver 201 beginning September 12/13. You must be registered in a laboratory section in order to receive credit for the course. The sections have a limited capacity; consequently, you must attend the section for which you are registered. It is not possible to attend different sections on different weeks and it is not possible to perform make-up experiments.
The evaluation method for the laboratory involves a system of 50 points each week, allocated as follows:

- Attendance 10 points
- Quiz 10 points
- Lab Assignment 30 points

You are expected to arrive punctually for the beginning of the lab session. Arriving more than 10 minutes late will result in a loss of attendance credit for the session.

Questions for the laboratory quizzes will be based on the description of the experiment in the laboratory manual; consequently, you must read the relevant lab manual section before each session. Arriving more than 10 minutes late for the lab will exclude you from taking the quiz.
The laboratory assignment must be completed and submitted during the laboratory period by working collaboratively with your laboratory partners.
If you cannot attend a lab session because of illness, notify your lab instructor before the start of the laboratory session and provide documentation within one week. If you will miss a lab session due to special circumstances, including observation of a religious holiday, notify your lab instructor in advance. In accordance with Core Curriculum policy, you will receive a score of zero for the entire laboratory portion of the course if you miss more than three laboratory sessions.

EVALUATION
The final grades for the course will be based on achievement on exams, homework, laboratory work, and group presentations, each component weighted according to the following scheme:

- Midterm Exam 1 15%
- Midterm Exam 2 15%
- Final Exam 18%
- Laboratory 27%
- Problem Sets 15%
- Group Presentation 10%

Students accumulating at least 90% of the evaluation points will receive a letter grade no lower than an A-, those receiving at least 80% no lower than a B-, and so forth. If the median score for the course is lower than 85%, a linear adjustment (“curve”) will be implemented to move the median up to the B+ range. Note that this adjustment can only improve your grade; there is no benefit to treating your classmates as competitors. Finally, an opportunity for extra credit will be offered after the second exam, allowing students to add 3 percentage points to their total score accumulation; these points will be added after the curve is set to insure that the extra-credit assignment is optional.

OFFICE HOURS
My office is in a restricted-access laboratory. Consequently, drop-in meetings are not feasible. To schedule an appointment, send an email to mrockman@nyu.edu proposing several specific meeting times that fit your schedule. I will reply with an invitation to office hours at one of those meeting times.
**HOW TO SUCCEED IN HUMAN GENETICS**

1. **Attend lectures and ask questions.** Exams are based on the material covered in lecture, so to do well you’ll need to be present and attentive during each lecture. That means showing up, paying attention, and most importantly, asking questions when you don’t understand something. It is almost always the case that if you are confused by something in lecture, others are too, and they’ll be grateful to you for asking questions.

2. **Do the problem sets independently.** The exams mirror the structure of the problem sets, so doing well on the problem sets is a good way to gain the skills and confidence to succeed on the exams. Keep in mind that you are to complete the problem sets by yourself. Use any resources you like, except your classmates.

3. **Prepare for your laboratory sessions.** The lab exercises provide hands-on exposure to genetics principles and practices, and they will be fun if you arrive prepared. That means you should read and understand the lab manual materials for each lab before you arrive.

4. **Invest time in your group presentation.** The presentation requires collaborative effort, and you will do best by arranging regular discussions with the members of your group, sharing the effort, and getting an early start. The presentations are your opportunity to be the expert on the aspects of genetics that excite you the most, and the experience will repay your effort.

5. **Study for exams.** Review your notes and the lecture slides, which are posted after each lecture to NYU Classes. Review the problem sets and make sure you know how to answer the questions. If you understand the material underlying the problem sets, you’ll do well. Be careful about studying in groups. It’s common in study groups for a few students to explain the material to the others, which gives the latter the false impression of understanding. Understanding means that you can explain the material, not that you can listen while it’s being explained.

6. **Collect all the points.** Your course grade draws from many different kinds of assignments and assessments, and the steady accumulation of points is the sure way to get a good grade. Simply complete and turn in your problem sets, show up on time and prepared to every lab session, work on your group presentation, study for exams, and do the extra credit assignment.

7. **Ask for help.** There are many people standing by to help you. Foremost among them are your laboratory instructors and professor. Ask them questions. Make an appointment for an office-hours meeting. In addition, you can get free one-on-one peer tutoring at the University Learning Center. Tutors who specialize in material covered by the Biology majors’ courses (including Principles of Biology, Genetics, and Biostatistics) are ready to help you.

8. **Stay ahead of the calendar.** If you know you’ll be missing classes, tell us well in advance. If you need special accommodation for exams, talk to the Moses Center well in advance.

9. **Take care of yourself.** College is hard. New York is hard. 2017 is hard. Make sure you have support to deal with stress and other personal issues that arise during the semester. Ask for help from Counseling Services. Call the Wellness Exchange any time, 24 hours a day, to talk to a professional who is prepared to help you: 212 443 9999. Remember that everyone here wants you to succeed and will work to make that happen.
GUIDELINES FOR STUDENT PRESENTATIONS

Genetics is in the news a lot. Stories in newspapers, on television, and across the internet report on new discoveries and applications of genetics. Because these stories are directed to general audiences, they usually have to simplify complicated information. Many adopt metaphors to communicate difficult ideas. Often, in order to generate page-views or maintain readers’ interest, the popular media will report on modest, incremental findings as though they were radical and world-altering revolutions. One of our goals in this class is to become better consumers of scientific claims in the popular press. To that end, students will team up to analyze a story in the popular media, assess its accuracy, and communicate their findings to their classmates. These presentations are a chance for you to dig into a topic of your own choosing and to convey your enthusiasm to the class.

Overview
Each team of four students will analyze an article in the popular press about a topic in the broad area of human genetics. The topic should be related to something covered in the syllabus, but creative suggestions are welcome. If your group has an idea for a topic, it can be a starting point for a search for articles in the media. Alternatively, you can browse the media until finding an article of sufficient interest to serve as the focus of a presentation.

Topic ideas are due before your lab sessions on Oct 24/25
Each team should identify two topic ideas, each pegged to an account in the media, and should submit these topics to their lab instructor by email. The instructor will process all the topic ideas and assign each group its first choice topic if there is no overlap among groups and if the proposed topic is appropriate. If multiple groups identify the same topic, instructors will assign the topic to the group that submitted the idea first. Consequently, there is an incentive to email topic ideas to your lab instructor as soon as possible.

Oral presentations will occur in lab on Dec 5/6, in a sequence determined by your lab instructor. The structure of the presentation is entirely at the discretion of the group members, though each member of the group must participate. Presentation research should involve a study of other articles on themes related to the group’s subject that address it from different viewpoints, including the primary scientific literature on which the media account is based. Many techniques in genetic research are controversial, and presenters may choose to present opposing arguments for the use of these techniques or interpretations of findings. Media reports often take shortcuts around biological complexities, and groups should make an effort to distinguish reality from hype and simplification from oversimplification. Because presentations are only 12 minutes, care must be taken in choosing what to present. After the 12-minute presentation, each team will field questions for an additional 3 minutes. Each group can select its own mode of presentation. Illustrated slides, produced in presentation software like Microsoft Powerpoint or Apple Keynote, are a reliable way to keep the presentation on track. Presentations will be graded by your lab instructor. The evaluation criteria are 1) the depth of research and analysis, 2) the command of the subject, and 3) the effectiveness of the presentation. Each group presentation receives a single score.